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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/722,879	11/26/2003	David Anglin	DCL2007P4/M4998D	2070
40536	7590	05/08/2007		
MR. BARRY D. JOSEPHS ATTORNEY AT LAW 19 NORTH STREET SALEM, MA 01970			EXAMINER RUTHKOSKY, MARK	
			ART UNIT 1745	PAPER NUMBER
			MAIL DATE 05/08/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.		Applicant(s)	
	10/722,879		ANGLIN ET AL.	
	Examiner		Art Unit	
	Mark Ruthkosky		1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-79 is/are pending in the application.
- 4a) Of the above claim(s) 1-12 and 53-79 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13-52 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>11/26/2003</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

The information disclosure statement filed 11/26/2003 has been placed in the application file, and the information referred to therein has been considered as to the merits.

Drawings

The drawings filed on 11/26/2003 have been approved.

Election/Restrictions

Applicant's election with traverse of Invention II, species I in the reply filed on 2/5/2007 is acknowledged. The traversal is on the ground(s) that species I and II are not independent and distinct. In this, applicant admits that the inventions are obvious variants and thus if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention. These species are rejoined, however, if the claims are amended with respect to the different limitations found in species II, the claims to species II will be withdrawn and the original election of species will be examined. The requirement is still deemed proper and is therefore made FINAL.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 13-21, 23, 38-40 and 42-52 are rejected on the ground of nonstatutory double patenting over claims 1-13 of U. S. Patent No. 7,094,494 since the claims, if allowed, would improperly extend the "right to exclude" already granted in the patent.

The subject matter claimed in the instant application is fully disclosed in the patent and is covered by the patent since the patent and the application are claiming common subject matter, as follows: The claims are almost identical in language, although the instant application does have added limitations in claim 13, including the phrases "cuboid shape", "housing having a closed end and an opposing open end" and "thereby forming a boundary surface around the cell

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interior.” As the patented claims are broader in scope than the pending in the instant application, the pending claims fall within the scope of the patented claims.

Furthermore, there is no apparent reason why applicant was prevented from presenting claims corresponding to those of the instant application during prosecution of the application, which matured into a patent. See *In re Schneller*, 397 F.2d 350, 158 USPQ 210 (CCPA 1968). See also MPEP § 804.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 13-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kelemen et al. (US 6,081,992) in view of Shkuratoff (CA 2,165,152,) and further in view of Takashi JP 09-259,842.)

The instant claims are to a primary alkaline cell comprising a negative and a positive terminal, and an outer housing of cuboid shape, said housing having a closed end and opposing open end, said cell further comprising an anode comprising zinc and a cathode comprising MnO₂ within said housing, a separator between said anode and cathode, and an end cap assembly sealing the open end of said housing thereby forming a boundary surface around the cell interior; wherein the cathode comprises a plurality of rectangular shaped cathode slabs; wherein each of said slabs has a central opening devoid of cathode material; wherein said cathode slabs are

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stacked within the housing so that said openings devoid of cathode material form a core, with the outer surface of said cathode contacting the inside surface of said housing; wherein said cell comprises a vent mechanism located on said boundary surface, wherein said vent mechanism activates to release gas pressure from within the cell as said gas pressure rises, said vent mechanism comprising a first rupture zone comprising a groove on said boundary surface, said groove defining an underlying material region thinner than the average thickness of said boundary; and a second rupture zone on said boundary surface, wherein the first zone ruptures when gas pressure within the cell rises to a first pressure level and said second zone ruptures when gas pressure within the cell rises to a second pressure level being higher than said first pressure level allowing gas from within the cell to escape from the cell interior through said ruptures.

Kelemen et al. (US 6,081,992) teaches a primary alkaline cell comprising a zinc anode, a manganese dioxide cathode, an aqueous potassium hydroxide electrolyte, negative and a positive terminals, an outer housing including an open end and an opposing closed end and having a pair of opposing flat sides running along a portion of the length of the housing and an end cap assembly sealing the open end of the housing (see figures 1-3, col. 5, lines 20-end.) The casing has a cuboid shape and includes a cover with an aperture. An end cap assembly having an end plate, an insulating seal and an elongated conductive member for the anode is noted in figure 8 (and col. 5.) Electrode active materials are noted in col. 8, (lines 35-end and in col. 1, lines 1-30.) The cathode comprises at least one cathode slab having an opening defined there through devoid of cathode material with at least a portion of the outer surface of the cathode contacting the inside surface of the housing (see figure 8 and claims 1-31.) The slab is taught to be a

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rectangle. The reference teaches AAA and AAAA cells (Linden, as cited, teaches Zn/MnO₂ cells that have a diameter of 10 mm. These are standardized sizes of the art. AAAA cells are smaller than AAA cells.) The Kelemen reference does not teach the cell includes asphalt as a sealant or that the insulating members are plastic or paper. These materials are well known as sealants and insulating gaskets in the art. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use asphalt as a sealant and to use paper or plastic as the insulating material in the Kelemen cells as the materials are known in the art to seal and insulate in the manner claimed.

The Kelemen reference does not teach the cell has a vent mechanism located on the boundary surface, wherein the vent mechanism activates to release gas pressure from within the cell as said gas pressure rises, said vent mechanism comprising a first and a second rupture zone on the boundary surface wherein the rupture zones have a property that the first zone ruptures when gas pressure within the cell rises to a first pressure level and said second zone ruptures when gas pressure within the cell rises to a second pressure level being higher than said first pressure level allowing gas to escape from the cell interior through said ruptures.

Shkuratoff (CA 2,165,152), however, teaches a safety vent for sealed prismatic batteries. The safety vent may be applied to any wall of the prismatic battery (paragraph bridging pages 10-11.) The pressure that the vent releases is dependent on the material of the casing and the desired release pressure. Pressures of 150 to 250, 300 and 400 are noted (pages 12-13.) Grooves are noted in the boundary surface. Grooves may be prepared by etching or stamping. The grooves have a smaller thickness than the battery casing. The casing may have dimensions of 7.8 x 34 x 48 mm (page 11.) Wall thickness of the battery was 0.5 mm for the walls and 0.25 for

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the cover. It would have been obvious to one of ordinary skill in the art at the time the invention was made to prepare a battery having a grooved vent structure as taught by Shkuratoff in order to release pressure at a desired amount in order to prevent the explosion of a battery.

Takashi (JP 09-259,842) teaches a sealed rectangular battery comprising a rectangular case and a rectangular cover defining the interior of the battery. A self-recovering, rupturable safety valve is taught in the cover for preventing an internal pressure rise. Further, a second rupturable vent structure is located where the cover is welded to the battery case. When internal gas exceeds a desired pressure, the case is broken and the battery is vented (para. 8-11.) The safety valve is set to a lower pressure than the welded vent structure (abstract, figures, claims 1-2, para. 2, 4, and 28-30.) It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the venting structures of Takashi into the battery of Kelemen et al. (US 6,081,992) in order to prevent the build-up of pressure on the cell interior and to safely vent the battery if overpressure occurs. Adding a second vent structure, as taught in Takashi, would be obvious to one of ordinary skill in the art. If the first structure did not function, a second structure may be added to protect the battery from explosion in the event of battery malfunction (para. 28.) Further, it would be obvious to use the venting structures taught in the prior art including Shkuratoff (CA 2,165,152) as the venting structures of Kelemen as these groove-venting structures are taught to be useful for defining vents at specific pressures in areas at higher stress levels of a rectangular casing. The artesian would have found the claimed invention to be obvious in light of the teachings of the references.

With regard to claims 18-22, 31, 43, 44 and 47, the method of forming the groove has been considered, but is not given patentable weight. MPEP 2113 states, "Even though product-

by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” It would be obvious to use two rupture zones as taught by Takashi with any venting structure taught in the prior art references applied, as the vents are taught to release pressure at undesirable levels with good accuracy. With regard to claims 36-37 balancing the anode and cathode based on theoretical capacity is well known in the battery art in order to give a practical amount of each material that may be used in the cell reactions. Excess cathode material is used to give an adequate amount of material for reaction with the anode active material.

Further, Kelemen et al. (US 6,081,992) does not teach a rectangular end plate forming the negative terminal. As the references teach rectangular ends that are formed of rectangular plates, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the structures taught in Shkuratoff or Takashi as the casing of the Kelemen cell. The structure of the battery is a design choice such as AAAA, AAA, or rectangular and one of ordinary skill in the art would have the teachings of the art at their disposal to house the components of a cell. As the cell components taught in Kelemen are rectangular, it would be obvious to house them in a rectangular housing as taught in Shkuratoff or Takashi.

With regard to claims 46, 47 and 50, Takashi teaches specific pressures for rupturing including the valve low pressure of 5 kg/cm^2 (or about 70 psig, para. 20) and a weld pressure of 60 kg/cm^2 (~850 psig, para. 23), however, it also teaches the skilled artisan that safety valve is

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set to a lower pressure than the welded vent structure and that the pressures depend on the type of battery and desired ruptured pressures (para. 2-8, 15 and 28-30.) Further, Shkuratoff (CA 2,165,152) teaches the safety vent for sealed prismatic batteries may be applied to any wall of the prismatic battery (paragraph bridging pages 10-11) and that the vent releases is dependent on the material of the casing and the desired release pressure. Pressures of 150 to 250, 300 and 400 are noted (pages 12-13.)

Claims 48 and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kelemen et al. (US 6,081,992) in view of Shkuratoff (CA 2,165,152,) and Takashi (JP 09-259,842.), as applied, and further in view of Shelekhin et al. (US 6,780,539.)

The teachings of Kelemen, Shkuratoff (CA 2,165,152,) and Takashi have been presented. The Kelemen and Takashi references do not teach the cell having a wall thickness in the range of about 0.30-0.050 mm. Shelekhin et al. (US 6,780,539) teaches a Zn/MnO₂ battery that has a cuboid shaped steel casing having a wall thickness in the range of about 0.30-0.050 mm (col. 4, lines 45-end, col. 8, lines 15-30, col. 9, lines 20-40, claims 1-28.) It would have been obvious to one of ordinary skill in the art at the time the invention was made to prepare a battery having a wall thickness in the range of about 0.30-0.050 mm, as the prior art recognizes that the thickness depends on the strength of the material used in order to withstand the internal battery pressure. For example, Shkuratoff (CA 2,165,152) teaches wall thickness of the battery was 0.5 mm. The reference also teaches plastic casings, but notes that greater thicknesses are required for a less durable material. Minimizing the thickness is recognized and desired as a larger thickness reduces the amount of volume available in a standardized sized battery. For example, AAA

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batteries have a predetermined size so the greater the thickness of the wall, the less internal space available for the battery active materials that provide battery activity.

Further, Kelemen et al. (US 6,081,992) does not teach a rectangular end plate forming the negative terminal. As the references teach rectangular ends that are formed of rectangular plates, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the structure taught in Shelekhin as the casing of the Kelemen cell. The structure of the battery is a design choice such as AAAA, AAA, or rectangular and one of ordinary skill in the art would have the teachings of the art at their disposal to house the components of a cell. As the cell components taught in Kelemen are rectangular, it would be obvious to house them in a rectangular housing as taught in Shelekhin.

Examiner Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Ruthkosky whose telephone number is 571-272-1291. The examiner can normally be reached on FLEX schedule (generally, Monday-Thursday from 9:00-6:30.) If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached at 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

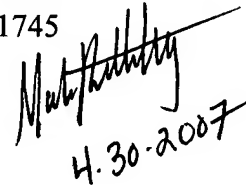
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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free.)

Mark Ruthkosky

Primary Patent Examiner

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4.30.2007